

MEMORANDUM

SUBJECT: Request for Removal Action at the El Paso County Metals Survey site, El Paso, El Paso County, Texas

FROM: Charles Fisher, Federal On-Scene Coordinator
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THRU: Charles A. Gazda, Chief
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TO: Myron O. Knudson, P.E., Director
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I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action to be undertaken pursuant to Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604, described herein for the El Paso County Metals Survey (Site) area located in the City El Paso, El Paso County, Texas. The removal action proposes to remove contaminated arsenic and lead soils found on residential properties. A previous action memorandum entitled "Request for Removal Action at the El Paso County Metals Survey Site" signed on October 29, 2001, is another site located in El Paso that is now known as the San Marcos Street Site.

This removal action is anticipated to require less than twelve months and less than \$2 million for completion. No actions have been initiated under the On-Scene Coordinator's \$50,000 authority.

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID#: TX0000605388

Category of Removal: Time-Critical

Site ID#: LP

National Significance: Removal Action

A. Site Description

1. Removal site evaluation

The Site, which extends throughout the City of El Paso, has a significant number of lots with homes currently in use as dwellings, while other lots are vacant. The American Smelting and Refining Company (a.k.a. ASARCO) is located within the El Paso city limits.

The following is a chronology of ASARCO operations as presented from publicly available information derived from ASARCO, Inc.'s, corporate internet website <http://www.asarco.com/factsheets/elpaso.html>. The El Paso plant is a copper smelter that was placed on care and maintenance status in February 1999. In 1998, the El Paso plant produced 120,320 tons of copper anodes and 347,674 tons of sulfuric acid. The facility occupies 585 acres, with the plant occupying 123 acres located at 3201 West Paisano Street, El Paso, Texas.

A brief history indicates that the facility began operation in 1887, as El Paso Lead smelter founded by Robert S. Towne. In 1899, the smelter became part of American Smelting and Refining Company. In 1911, a copper smelter was added, and a crushing plant was installed in 1928. A zinc plant was installed in 1948. Sometime in 1982, the zinc plant was shut down, with lead plant operations being suspended in 1985. In 1998, redesign of the reactor feed system was completed which increased plant capacity. In 1999, the plant was placed on care and maintenance status.

2. Physical location.

The exact location of the approximately 45-2,000 residential properties is not known as of the writing of this Action Memorandum. The exact location of individual residential properties requiring soil removal will be determined after Environmental Protection Agency (EPA) has performed individual property site assessments within already identified areas of the city.

3. Site characteristics.

The Site consists of residential properties contaminated with arsenic and/or lead throughout the City of El Paso, El Paso County, Texas. Further sampling is needed to determine the number and extent of contamination. According to sampling results already obtained and projections from the sampling, the Site could range between 45-2,000 residential properties.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant.

Several previous investigations have been conducted to determine if high concentrations of metals are prevalent in soils throughout the City of El Paso. These investigations have been conducted by the Texas Air Control Board (TACB) and numerous environmental investigations associated with individual master theses from students at the University of Texas at El Paso (UTEP). These investigations identified elevated concentrations of metals in soils throughout areas of El Paso.

Based on these early investigations and a request from the local officials and state senator Eliot Shapleigh, EPA conducted an initial soil screening investigation of El Paso schools and parks in early July 2001 to determine if the data from UTEP was reproducible. At that time, air and soil samples were collected from numerous areas throughout the city. Based on these results EPA determined that several areas warranted further investigation. Air sampling indicated the levels of metals in dust samples were higher than in some areas of the city. The results indicated that lead and arsenic levels in the soil were elevated with levels as high as 1,700 parts per million (ppm) of lead and 81 ppm of arsenic.

Lead and arsenic are hazardous substances as defined at CERCLA § 101(14), 42 U.S.C. § 9601(14), and listed at 40 C.F.R. § 302.4.

5. NPL status

The Site is not presently proposed or listed on the Superfund National Priorities List (NPL), and has not received a Hazard Ranking System (HRS) rating.

B. Other Actions to Date

1. Previous actions

A January 23, 2001, article in the EL Paso Times stated that heavy metals contamination had been identified in soil samples taken near the Sun Bowl Stadium. The paper stated that cadmium, arsenic, and lead were 100's of times higher than background. A local state senator, Eliot Shapleigh, requested advice from a group of local health, environment, and academic officials. This group, known as the El Paso Soil Workgroup, is made up of representatives from the Texas Department of Health (TDH), the Texas Natural Resource Conservation Commission (TNRCC), the El Paso City/County Health and Environment Department, UTEP, and EPA.

The soil workgroup requested EPA's technical assistance and provided information so that EPA could evaluate the potential risk. The information provided to EPA on May 31, 2001, was a 1989 soil sampling report prepared by the former TACB, and four 1993 UTEP masters theses which contained soil sampling data. The results of these investigations are briefly discussed below.

In 1989, in response to a request from the Research Division of the TACB, the Sampling and Analysis Division of the TACB conducted soil sampling in the vicinity of ASARCO in El Paso. Personnel from the source sampling section collected the soil samples on July 12 and 13, 1989 (TACB 1989). The project was designed to document the levels of arsenic in the top one-half inch of soil at selected sites in the vicinity of the facility. The highest single soil value of arsenic detected was 1,100 ppm.

In May 1993, Brenda E. Barnes, presented a Master Thesis to the UTEP *An Evaluation of Metals Concentrations In Surficial Soils, El Paso County, Texas*. The abstract states that the study involved the collection of soil samples from areas surrounding various facilities in El Paso, which were potential point sources (historical as well as current), for metals contamination (Barnes 1993). Areas of concern were identified as the ASARCO smelter, Memorial Park in central El Paso, where the Federal Smelter was formerly located, and the Phelps Dodge Copper Refinery. Concentrations of arsenic, cadmium, copper, lead and zinc (all metals associated with the smelting process) were highest in the area around the ASARCO smelter, and decreased with distance from the smelter (Barnes 1993).

In December 1993, Emmanuel Chukwuka Nname presented a Master Thesis to UTEP, *Heavy Metals In Soils In The Vicinity Of The University Of Texas At El Paso Campus (El Paso County,*

Texas). The abstract states that seventy-eight soil samples were collected, prepared and analyzed using appropriate EPA protocols to quantify heavy metals concentrations in the study area. Areas of interest included the campus of UTEP and parks and public school playgrounds within a 2-kilometer radius from the campus. The samples were analyzed for arsenic, barium, calcium, cadmium, chromium, copper, lead, nickel, selenium and zinc. The Ndambe thesis stated that “Overall, the data indicate no point source or large-scale contamination in arsenic, barium, cadmium, chromium and selenium.” And that, “Lead concentrations increased progressively from the western-most part of the campus around Sun Bowl Drive to the ASARCO smelter.”

In May 1994, Dilip Kumar Devanahalli presented a Master Thesis to UTEP, Survey of Heavy Metal Concentrations of Soils In Downtown El Paso, Texas. The abstract states that the study involved the collection of soil samples from the downtown area of El Paso. The study detected arsenic as high as 33 ppm with lead concentrations as high as 560 ppm. The Devanahalli sampling effort did not indicate the presence of significant arsenic or lead concentrations in surface or subsurface soils at those public schools sampled.

Also in May 1994, Shyam Srinivas presented a Master Thesis to UTEP, Heavy Metal Contamination of Soils in Public Parks, El Paso, Texas. Review of the abstract and data states that seventy-two surface and subsurface (6-inch depth) samples were collected from public parks in El Paso, which are located in the eastern and northeastern areas of the city. The Srinivas thesis stated that no point source or larger scale contamination was apparent and that concentrations of metals were generally higher in surface soils than in subsurface soils.

Based on the results from the various studies, officials and the soils workgroup requested further assistance with sampling of schools and parks. As discussed previously, based on sampling events, EPA has determined that elevated levels of lead and arsenic exist in the El Paso area and that these levels pose a threat to the residents.

2. Current actions.

EPA has no current on-going actions at the Site.

C. State and Local Authorities' Roles:

1. State and local actions to date

State and local officials have provided technical review and support of EPA investigations at the Site. The TDH has reviewed data from these investigations and has provided a health consultation in coordination with ATSDR. The TNRCC has requested Federal assistance to deal with the elevated metal concentrations in the El Paso area.

2. Potential for continued State/local response

State and local governments have requested Federal assistance due to lack of their resources. The State, through the TNRCC, will contribute 10% of any removal action conducted by the EPA.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT; STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

Conditions at the Site meet the following factors, which indicate that the Site is a threat to the public health, welfare and the environment and that a removal action is appropriate under Section 300.415(b)(2) of the NCP.

1. Actual or Potential Exposure to Human Populations, Animals or the Food Chain to Hazardous Substances , Pollutants, or Contaminants, NCP Section 300.415(b)(2)(i)

Contaminants in Soil, NCP Section 300.415(b)(2)(iv).

In accordance with Sections 300.415(b)(2)(i) and 300.415(b)(2)(iv) of the NCP, EPA has determined that there exists the potential for exposure of human populations, animals, or the food chain to hazardous substances through direct contact with soil contaminated with lead and/or arsenic.

Lead and arsenic constitute hazardous substances as defined at Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and further listed at 40 C.F.R § 302.4. Health effects are also well-documented in general toxicological literature.

According to Health and Human Services (HHS) and the ATSDR, the following health effects are associated with exposure to lead:

Exposure to lead is particularly dangerous to unborn and young children. Lead can affect virtually every system in the body and is particularly harmful to the developing brain and nervous system of fetuses and young children. Unborn children can be exposed to lead through their mothers' circulatory systems, which exposure may cause premature births, smaller babies, and decreased mental ability in the infant. Severe lead exposures in children can cause coma, convulsions, and even death. Lower levels of lead exposure can cause adverse effects on the central nervous system, kidney, and hematopoietic system. Blood lead levels as low as 10 milligrams per deciliter (ug/dL), which would not cause distinctive symptoms, are associated with decreased intelligence and impaired neurobehavioral development. Many other effects begin at low levels including decreased stature or growth, decreased hearing acuity, and decreased ability to maintain a steady posture.

In adults, lead exposure may decrease reaction time and possibly affect the memory. Lead exposure may also cause weakness in fingers, wrists, or ankles. Finally, lead exposure may cause high blood pressure, anemia, brain and kidney damage, miscarriages, and damage to the male reproductive system.

According to the HHS and the ATSDR, the following health effects are associated with exposure to arsenic:

Arsenic primarily enters the body through ingestion or inhalation as airborne dust. Arsenic and arsenic compounds are considered skin and lung carcinogens in humans and high levels of ingested arsenic are known to produce death. Ingestion of arsenic could also cause irritation of stomach and intestines, nerve injury, and possible liver damage. Common side effects include decreased production of red and white blood cells, abnormal heart rhythm, impaired nerve function such as feeling pins and needles sensation in hands. Studies in animals indicate that doses of arsenic sufficient to impact pregnant females also cause low birth weight, fetal malformations, or death. Oral ingestion causes skin pattern changes such as warts, moles, and corns that may develop into skin cancer. Inhalation of arsenic dust may cause irritated lungs but more significantly increased lung cancer has been associated with the exposure.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the action selected in this action memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

All of the actions to be taken during this removal will comply with all applicable, relevant, or appropriate requirements (ARARs) to the extent practical, considering the exigencies of the situation, and provide an effective mitigation of the imminent and substantial threats posed to the general public health and environment by the Site.

To initiate actions on specific residences, right of entry access from the owners will be obtained in the form of a consensual access agreement. All homes will be thoroughly documented and potentially certain engineering measurements will be taken prior to any soil excavation. The documentation process will entail photographing, video taping, and written descriptions of all details of the house. Details established and documented will include at a minimum: elevation of foundations, working condition of utilities, shrubbery and landscaping details, outside conditions of walls, structural condition of inside walls, location and condition of sidewalks and driveways, together with any unique items such as gardens or tools/lawn sheds or any other details necessary to document the condition of the residence as it was prior to the commencement of the removal action. The EPA will make reasonable efforts to restore the residence to the condition it was prior to the removal action. Prior to excavation, residents will be provided and agree to a restoration agreement detailing how the EPA will restore their property.

Excavation at homes will be based upon laboratory data exceeding established action levels of 24 ppm for arsenic and 500 ppm for lead. After excavation of the initial contaminated layer additional sampling

will be conducted to determine if all contamination has been excavated to below the action levels. This procedure will continue until either the excavated areas are determined to be clean or a maximum depth of 2 feet has been obtained.

Concrete areas, such as, driveways and sidewalks may be removed and replaced, at the discretion of the On-Scene Coordinator (OSC), if it is determined to be cost effective. Due to labor costs, detailed work around concrete is extremely costly compared to replacement cost; therefore, significant areas of concrete are likely to be removed to expedite the removal action. Similarly, utility lines may be removed and temporarily relocated during excavation activities. The utilities will be properly replaced in accordance to city codes prior to backfilling. Care will be taken to minimize utility down time during transfer to temporary utility lines. Temporary sidewalks will be installed to allow continued access to residences, thus eliminating the need for temporary relocation of residents during the action. The yards will then be backfilled to original elevations and returned to the condition as stated in the restoration agreement. This may entail replacing concrete, landscaping, and restoring fences and other items such as garden sheds. Large trees will be replaced with the best similar variety which is practical and commercially available. A final walk through with the owner will be performed to ensure that proper restoration has occurred to the owner's satisfaction.

During all soil excavation operations engineering controls and air sampling will be conducted to insure that potentially contaminated dust does not impact the community. Visible dust will be considered above acceptable levels. All excavation areas will be sampled during operations using high-volume Total Suspended Particulate (TSP) air samplers or PM 10 TSPs. A minimum of three TSP samplers will be placed on the perimeter of each removal area. Sampling will be consistent with methods specified by the National Ambient Air Quality Standards for Total Suspended Particulate Matter and lead (40 CFR Part 50, Appendices B and G). Samples

collected by this method will be sent to an offsite laboratory and analyzed for TSP, arsenic, and lead. Additionally, air monitoring for respirable particulates (dust) will be performed at the upwind and downwind perimeter of the exclusion area for all removal actions in the residential area. A mini-RAM PDM-3, or equivalent, portable aerosol monitor will be used for this task. The EPA will identify appropriate action levels for implementation of additional engineering controls, ceasing or modifying operations.

2. Contribution to remedial performance

The selected response contributes to any additional conceivable future remedial action by preventing direct human contact with the contaminated soil. This will eliminate the direct contact pathway to hazardous substances found in the Site's surface and subsurface soils.

3. Description of alternative technologies

The proposed technology eliminates human contact with surface soils at the Site efficiently and effectively. No other cost effective alternatives exists.

4. Applicable or relevant and appropriate requirements (ARAR's)

The proposed removal action will be conducted to eliminate the actual or potential release of a hazardous substance, pollutant or contaminant pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601 et seq., and in a manner consistent with the National Contingency Plan, 40 C.F.R. Part 300, as required at 33 U.S.C. § 1321(c)(2) and 42 U.S.C. § 9605. As per 40 C.F.R. § 300.415(i), fund-financed removal actions under CERCLA Section 104, 42 U.S.C. § 9604, and removal actions pursuant to CERCLA Section 106, 42 U.S.C. Section 9606, shall, to the extent practicable considering the exigencies of the situation, attain the applicable or relevant and appropriate requirements under Federal environmental law, including, but not limited to, the Toxic Substances Control Act (TSCA), 15 U.S.C. Section 2601 et seq., the Safe Drinking Water Act (SDWA), 42 U.S.C. Section 300 et seq., the Clean Air act (CAA), 42 U.S.C. Section 7401 et seq., the Clean Water Act (CWA), 33 U.S.C. Section 1251 et seq., the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 et seq., or any promulgated standard, applicable or relevant and appropriate requirements, criteria, or limitations under a State environmental or facility siting law that is more stringent than any Federal standard, requirements, criteria, or limitation contained in a program approved, authorized or delegated by the Administrator and identified to the President by the State.

B. Estimated Costs

Extramural Costs

Clean up contractor (ERRS)	\$ 1,300,000
START.....	\$ 450,000
Subtotal Project Ceiling.....	\$ 1,750,000
Removal Costs Contingency (15%).....	\$ 240,000
TOTAL REMOVAL PROJECT CEILING.....	\$ 1,990,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Should the action described in this action memorandum be delayed or not taken, the potential exposure of nearby human populations to hazardous substances found in the surface and subsurface soils will remain unabated.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues associated with this Site.

VIII. ENFORCEMENT

1. See confidential Enforcement Attachment.

IX. RECOMMENDATION

This decision document represents the selected removal action for the El Paso County Metals Survey Site in El Paso, El Paso County, Texas, developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the site meet the criteria found at NCP Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for a removal actions. The total project ceiling, if approved, will be **\$1,990,000**. Of this, an estimated **\$1,300,000** comes from the Regional allowance

APPROVED


Myron G. Kennison, P.E., Director
Superfund Division (SSF)

DATE

7/18/01